

FIG. 2

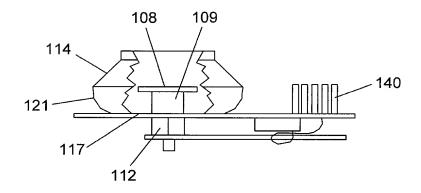


FIG. 3

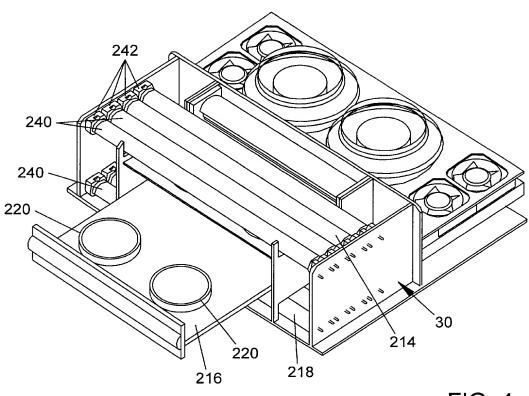


FIG. 4

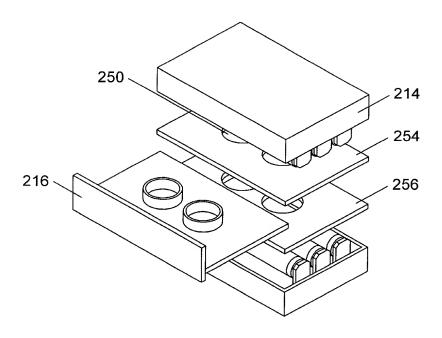
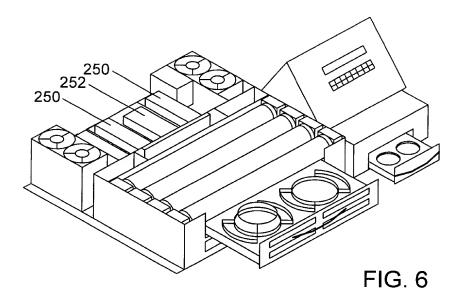


FIG. 5



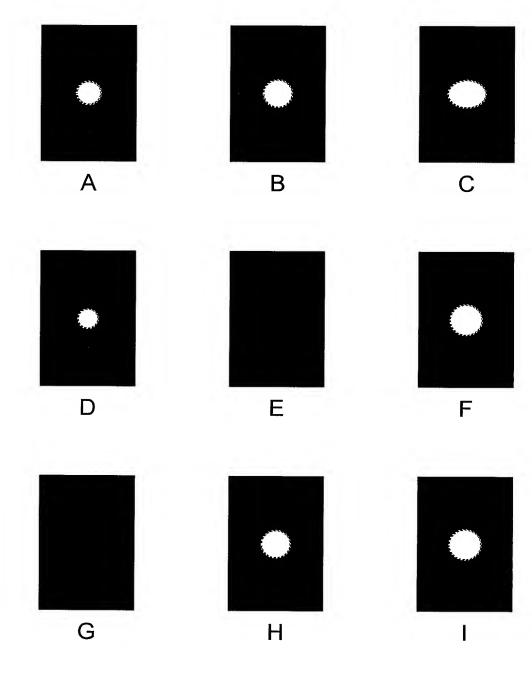


FIG. 7

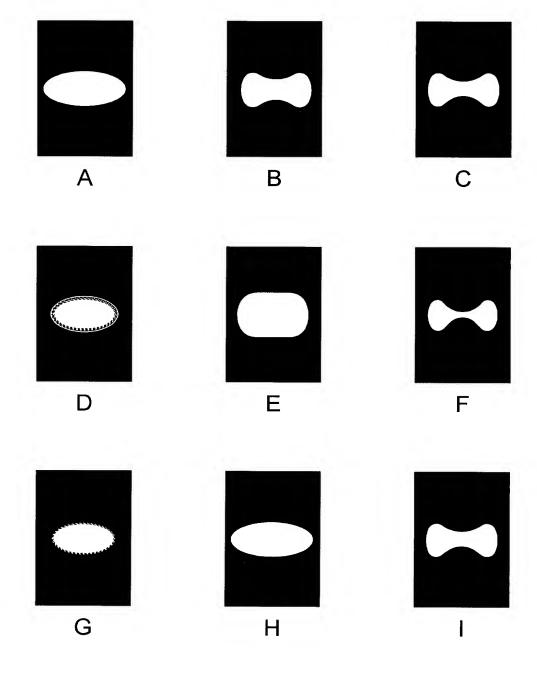


FIG. 8

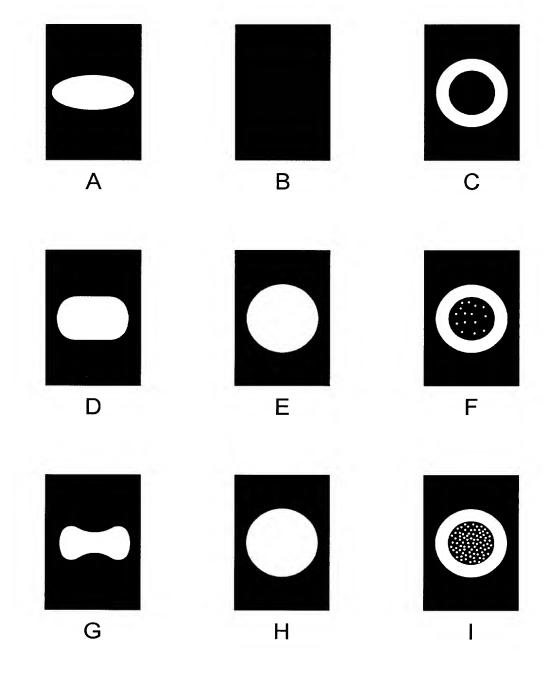


FIG. 9

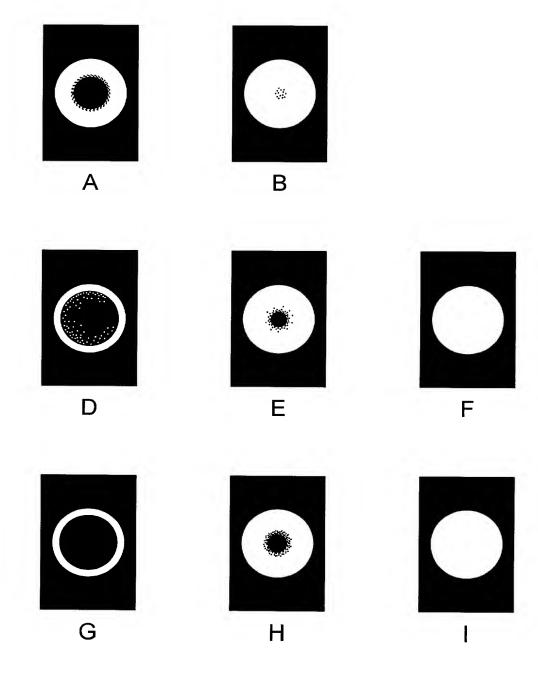


FIG. 10

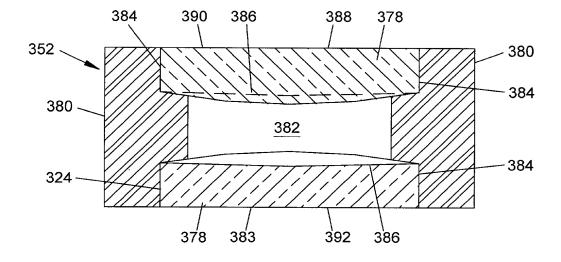
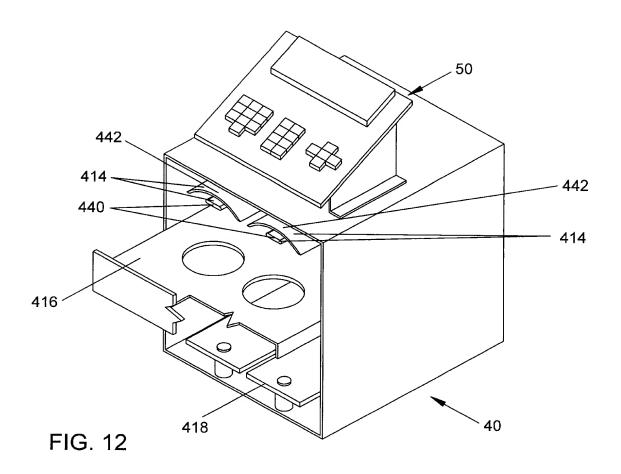
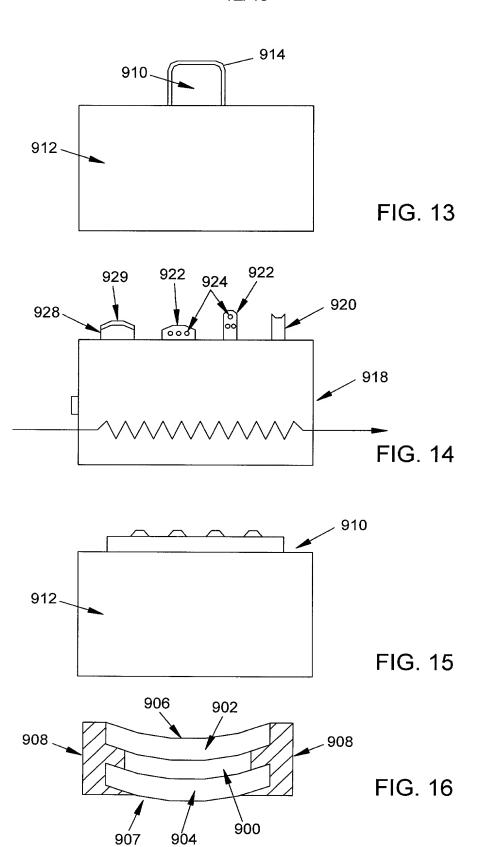
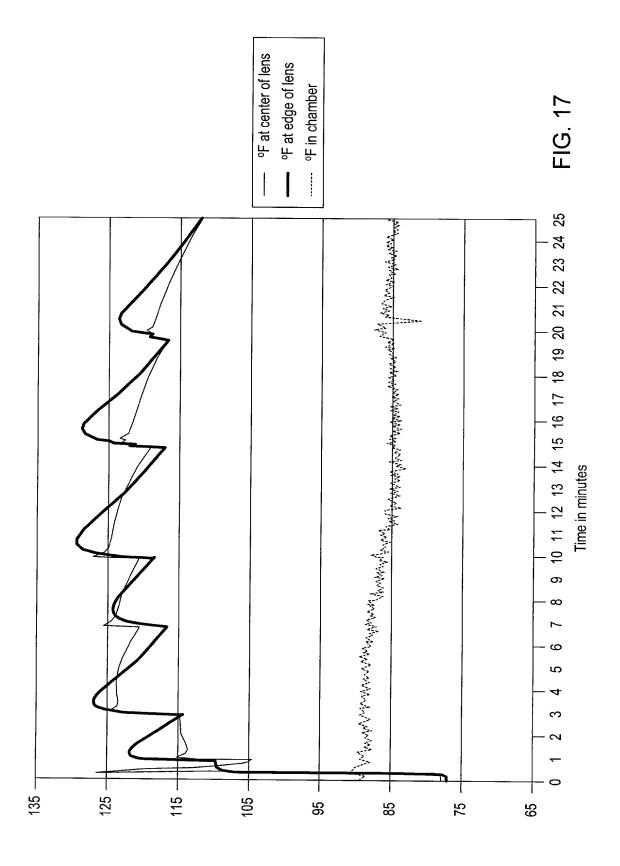
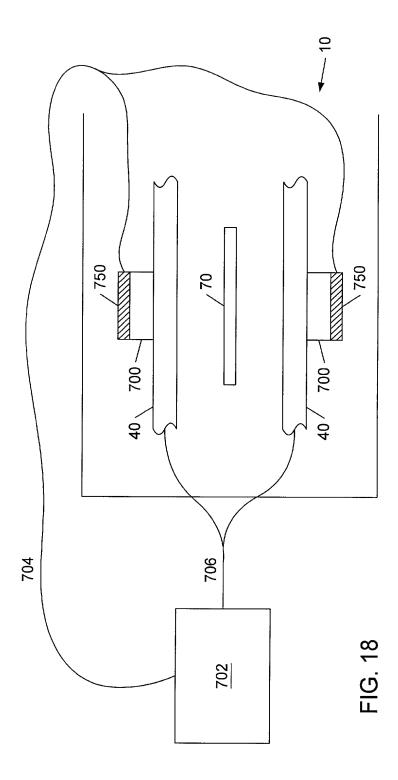


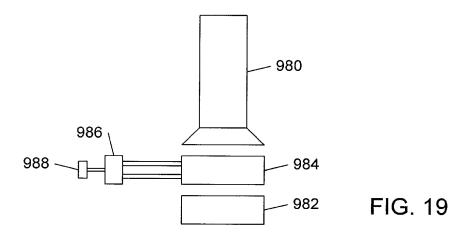
FIG. 11

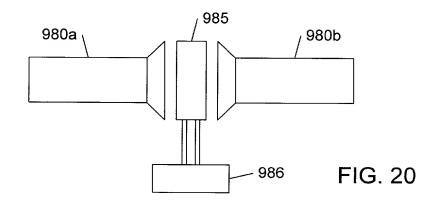


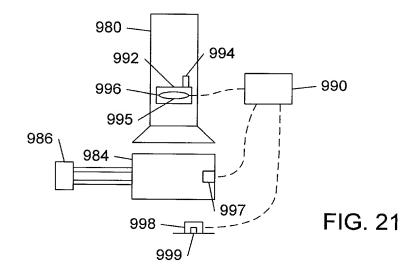


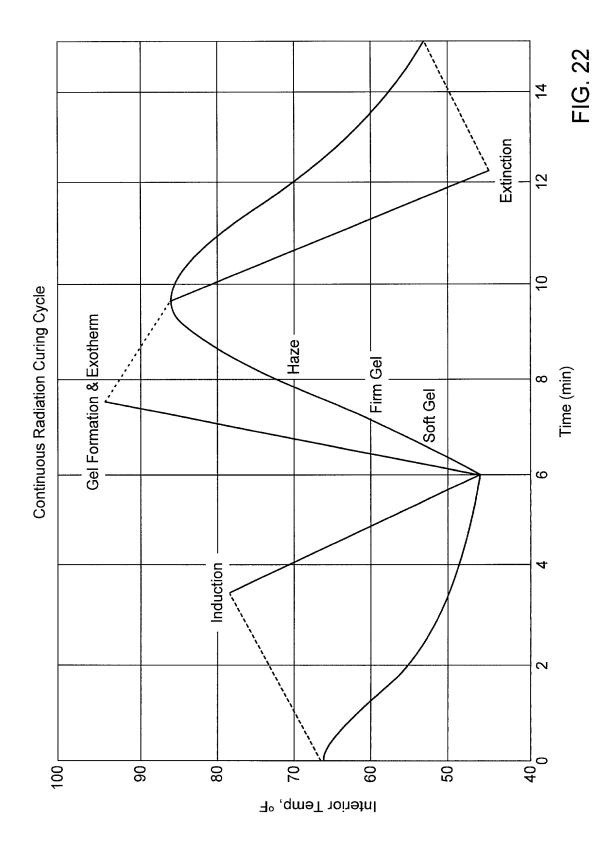


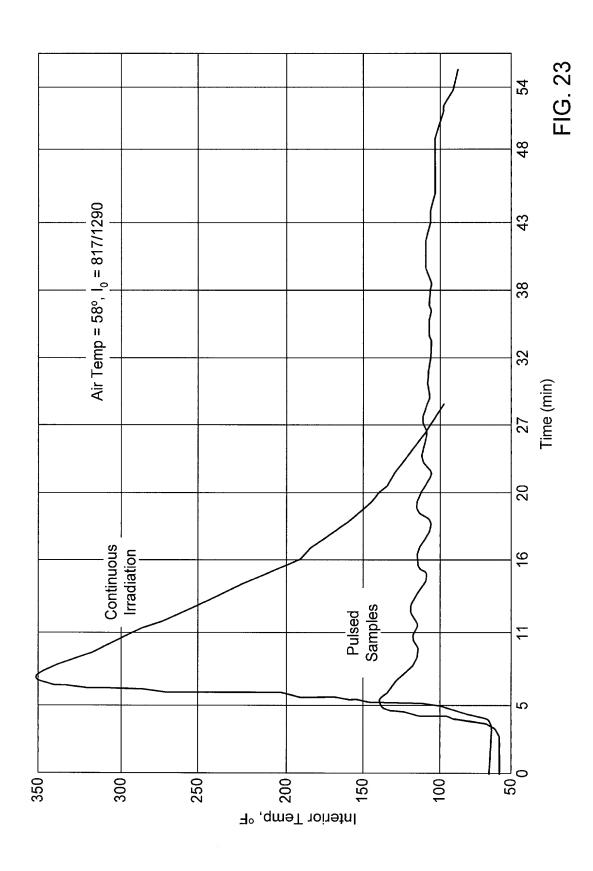












Interaction of Pulsed Method Variables

The effect that this variable will tend to have:

	or may ble ely re es in	al	/ be
IDENTITY OF MONOMER	Differences in inhibitor & initiator levels between batches of otherwise identical monomers may significantly affect induction periods. Various radiation curable compounds may also vary widely in their preferred initial exposure times due to inherent differences in their reactivity.	A significant effect that various monomers may have upon total cycle time will come from their different preferred initial exposure times.	The duration of the pulses may be adjusted to create the desired amount of reaction and heat generation for the particular lens forming material being cured. Adjusting the cooling period between pulses may also be beneficial.
OF MO	inhibitor batche fect indr s radial ay also ed initial	ffect tha y have t come fr rred initii	of the pusate the ction and the part the part the part ial being cooling to many and
ENTITY	Differences in inhibitor & initerences in inhibitor & initerences of otherwise identical monome significantly affect induction periods. Various radiation of compounds may also vary win their preferred initial expotimes due to inherent different reactivity.	A significant effect that various monomers may have upon tot cycle time will come from their different preferred initial expostimes.	The duration of the pulses madusted to create the desired amount of reaction and heat generation for the particular leforming material being cured. Adjusting the cooling period between pulses may also be beneficial.
	Differe levels otherw signification period compc in their trees their references.	A sign monor cycle 1 differe times.	The dura adjusted amount or generation forming neglecting between beneficial
NG	ds to oon the re	t a stween ycle	or a etween
RATE OF COOLING	The rate of cooling tends to have a small impact upon the preferred initial exposure period.	Increased rates of heat removal may allow for a reduction in the time between pulses and thus total cycle time.	Increased rates of heat removal tend to allow for a reduction in the time between pulses.
ATE OF	e of coc small in ed initial	sed rates al may a on in the and thu	sed rates
₩.	The rat have a preferr period.		Increas remove reducti pulses.
	initial / level d curing ne. It is nges in tte	Increased light intensity may cause a decrease in the initial exposure period. It is believed, however that changes in light intensities may have little impact above a certain light "saturation" point for the sample.	vel, the sed ed ing so be
ENSITY	reases, tend to intensity or a fixed osure tir that cha have lit ain light	nsity maintal exp 1, however 1, h	ensity less may less may less may lessir lessir The tim may als
LIGHT INTENSITY	nsity inc me may he light trolled fo intial exp owever, ties may ve a cert point fo	ght inter in the in believed light inter npact at ttion" po	light intropressions the pulse to create to eaction. eaction.
ΘΠ	As light intensity increases, initial exposure time may tend to decrease. The light intensity level may be controlled for a fixed curing cycle and initial exposure time. It is believed, however, that changes in light intensities may have little impact above a certain light."	Increased light intensity may cause a decrease in the initial exposure period. It is believed, however that changes in light intensities may have little impact above a certain light "saturation" point for the sample.	For a given light intensity level, the duration of the pulses may be adjusted to create the desired amount of reaction. The timing between the pulses may also be so adjusted.
PLE	As sample mass increases, initial exposure time may be increased. The mass of the sample interacts with light intensity to determine a preferred initial exposure time.	Increased sample mass may require increased total cycle lime to dissipate the additional heat generated.	Increased sample mass may require longer periods of cooling between pulses of light. More heat tends to be generated from each pulse for larger samples, thus requiring longer time periods to remove heat.
MASS OF SAMPLE	ass increte time refime refimes refimes refines refixed with stermine all expos	mple me used tota ate the a ate.	mple me r periods sen puls sat tends am each m each ss, thus eriods to
MASS (	As sample mass increases, initial exposure time may be increased. The mass of the sample interacts with light intensity to determine a preferred initial exposure time.	Increased sample mass may require increased total cycle time to dissipate the addition heat generated.	Increased sample mass may require longer periods of cooling between pulses of light. More heat tends to be generated from each pulse farger samples, thus requiring onger time periods to removes.
	As sa initial incres samp intens intens prefer	Increst require time theat (	Incress requires coolin light. gener gener larger longe
On this cycle variable in: OPTIMAL EXPOSURE TIME TOTAL CYCLE TIME TIMING BETWEEN PULSES			
On thi	variable in: OPTIMAL INITIAL EXPOSUR TIME	TOTAL CYCLE TIME	TIMING BETWEEN PULSES

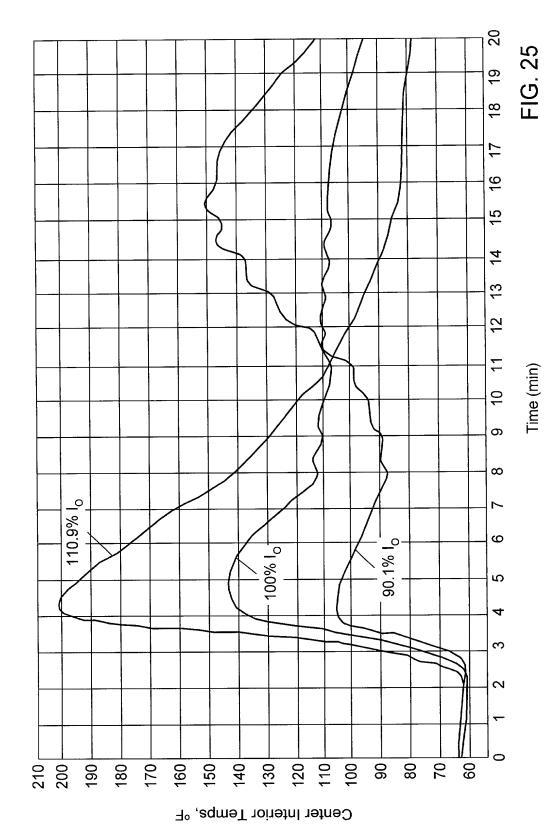
FIG 24

Interaction of Pulsed Method Variables (continued)

The effect that this variable will tend to have:

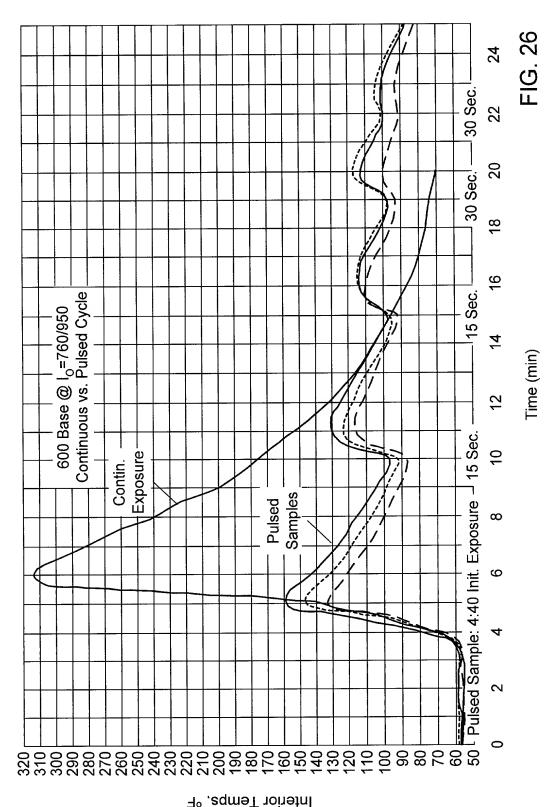
IDENTITY OF MONOMER	A significant effect that monomer identify may have on total cycle time may be contributed by differences in the preferred initial exposure period. Various lens forming materials may also require longer/shorter duration pulses depending upon their reactivity.	Various lens forming materials require different pulse duration depending upon their reactivity. For a selected material, slight differences in initiator & initiator levels will not tend to affect pulse duration.
RATE OF COOLING	There is only a small relationship between the total dosage of light a particular mass sample requires to polymerize and the rate at which it is being cooled.	A pulse will tend to generate a certain amount of heat to be dissipated. Since the pulse duration tends to be small relative to the time between pulses when the heat is being removed, changes in the rate of heat removal should not significantly affect the ideal pulse duration.
LIGHT INTENSITY	Increased light intensity will tend to result in decreased total exposure time and decreased light intensity will tend to require increased exposure time. It is believed, however, that changes in light intensities may have little impact above a certain light "saturation" point for the sample.	The duration of the pulses may be varied in inverse proportion with the light intensity selected. It is believed, however that changes in light intensities may have little impact above a certain light "saturation" point for the sample.
MASS OF SAMPLE	Increased sample mass tends to require both increased initial exposure time and a greater number of pulse/cooling cycles.	The length of the pulses during each phase of the curing cycle may be adjusted for different mass samples. The time between pulses may be increased/decreased according to mass.
On this cycle	variable in: TOTAL EXPOSURE TIME	DURATION OF PULSES

FIG. 24 (continued)

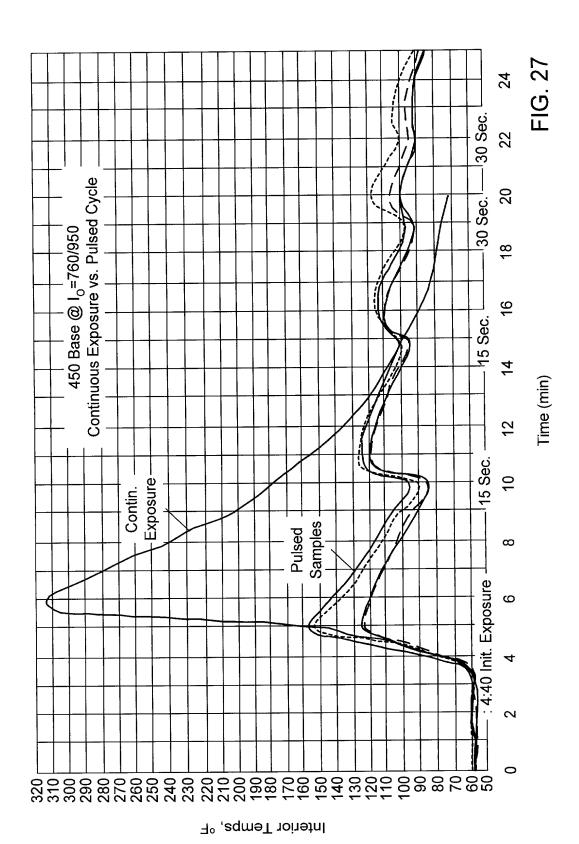


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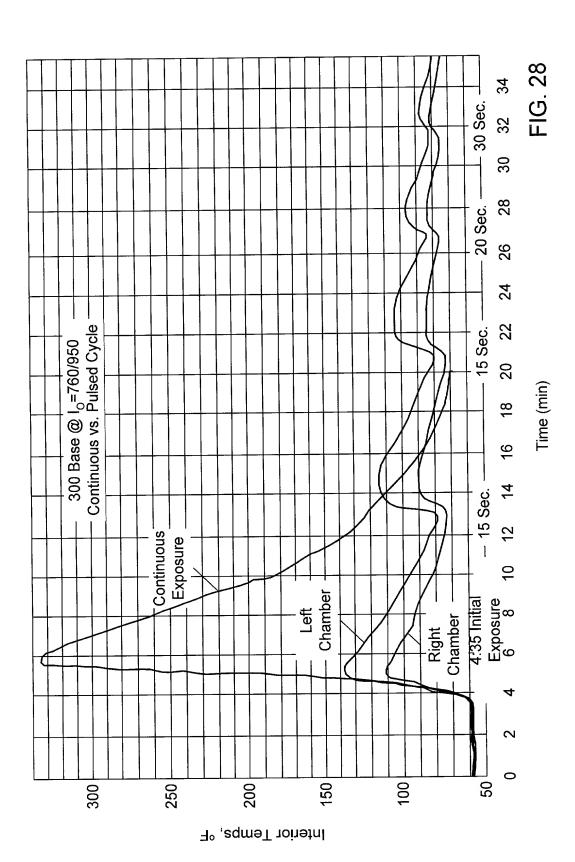
Interior Temps, °F



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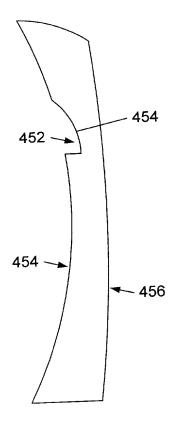
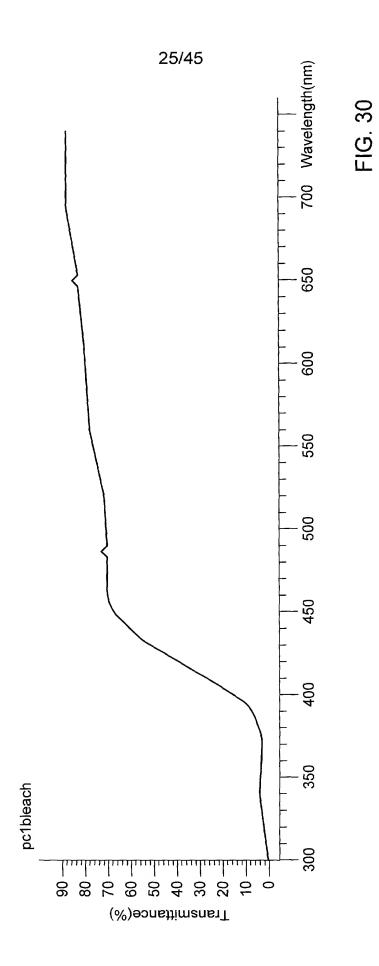
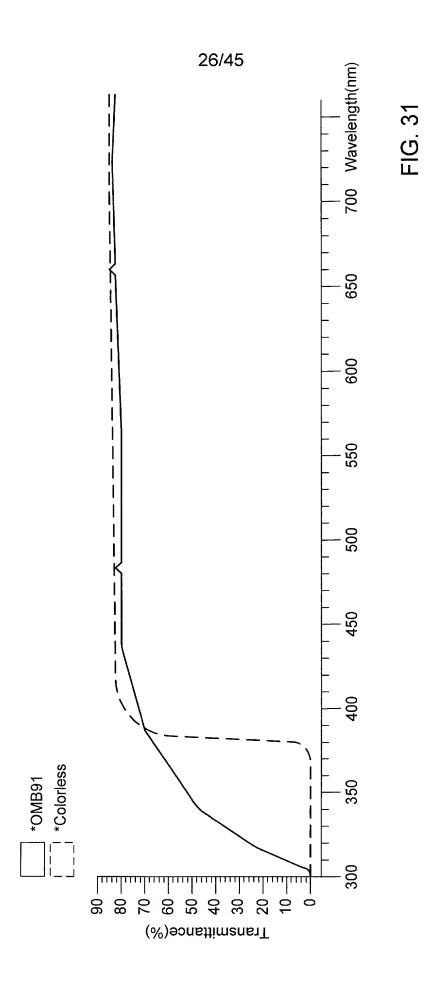


FIG. 29

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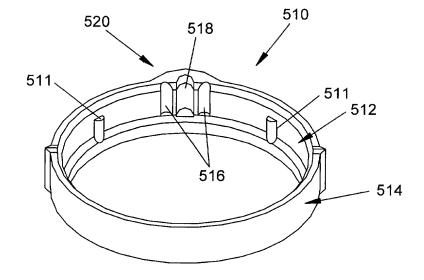


FIG. 32

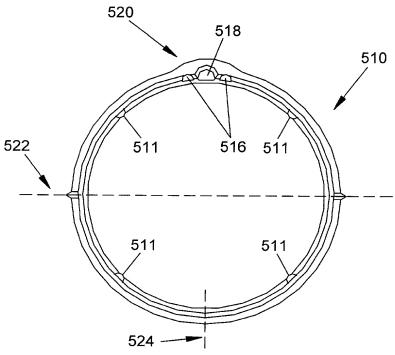


FIG. 33

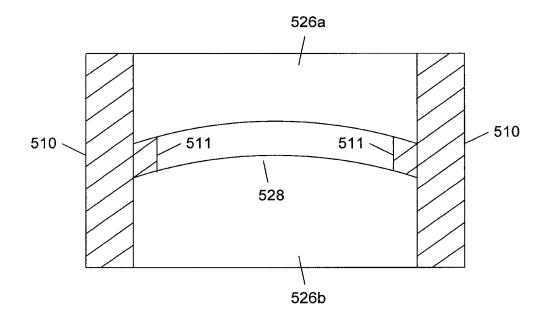


FIG. 34

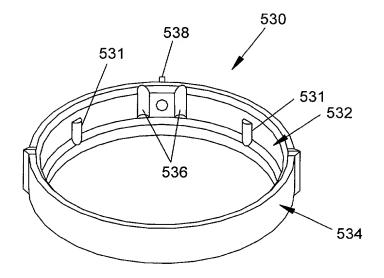


FIG. 35

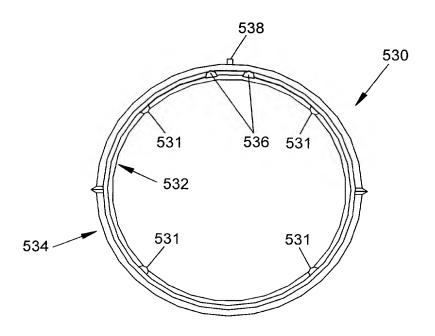


FIG. 36

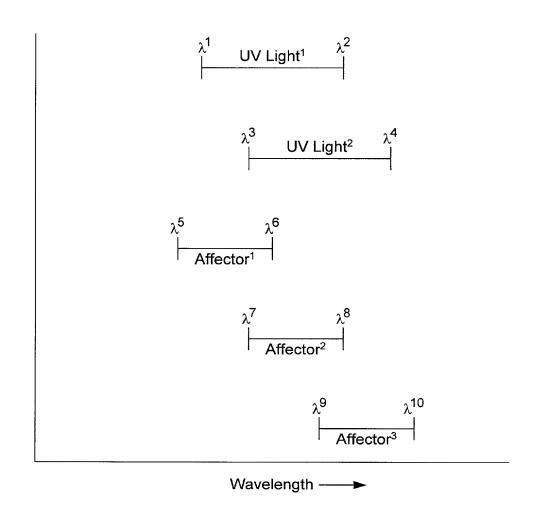
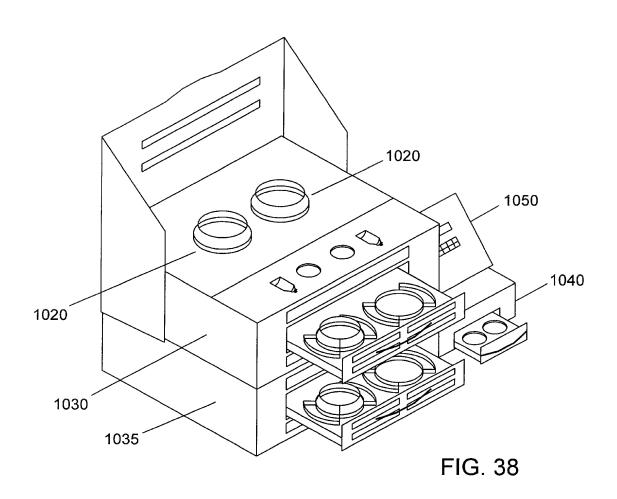


FIG. 37



$$R_0$$
 $O$ 
 $N$ 
 $R_1$ 
 $R_2$ 
 $(A)$ 

$$R_0$$
 $N$ 
 $N$ 
 $R_1$ 
 $R_2$ 
 $R_1$ 
 $R_2$ 
 $R_3$ 

$$R_0$$
 $R_0$ 
 $R_0$ 

FIG. 39

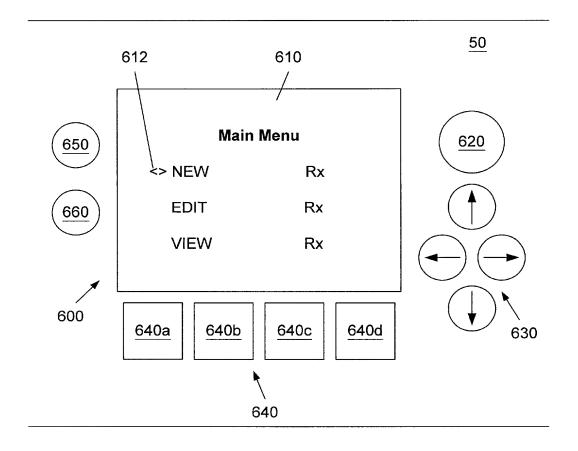


FIG. 40

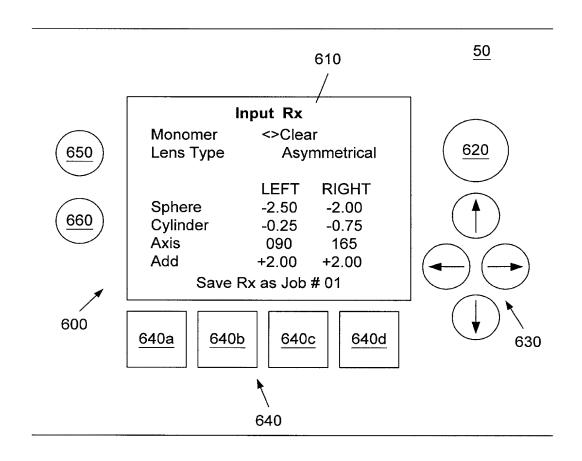


FIG. 41

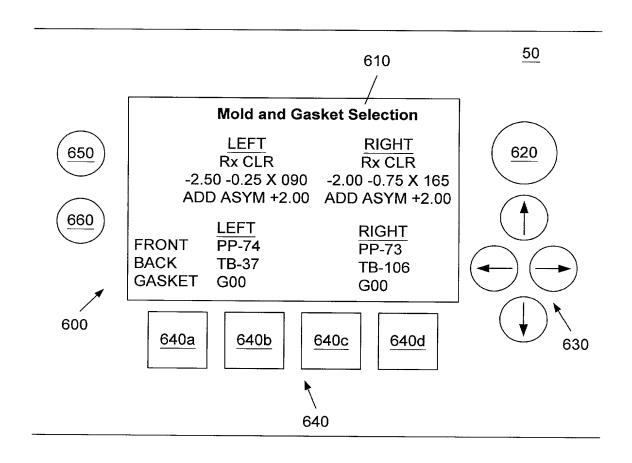


FIG. 42

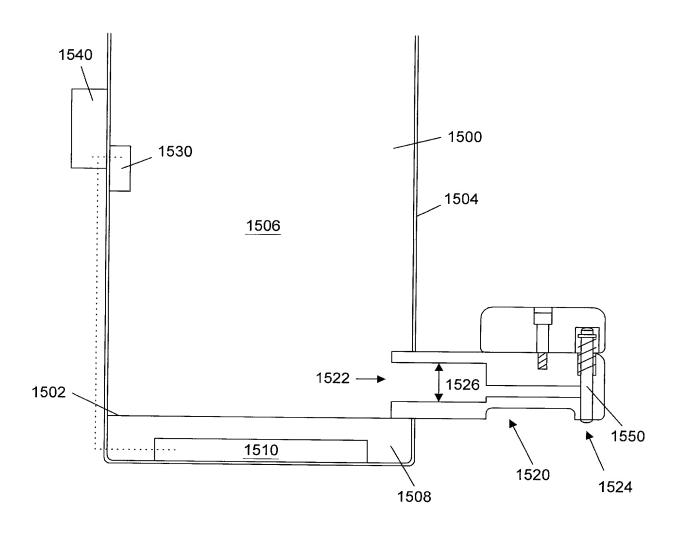


FIG. 43

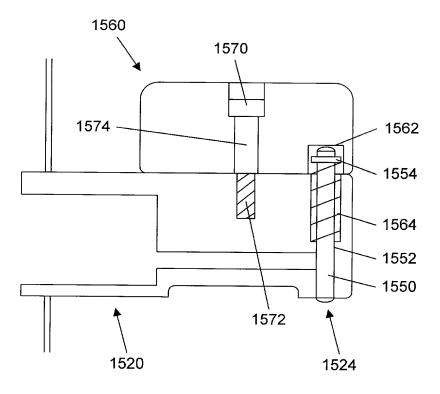


FIG. 44

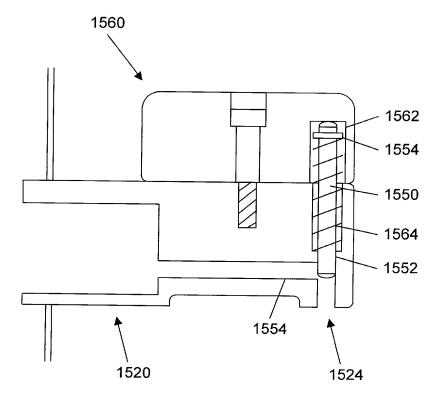


FIG. 45

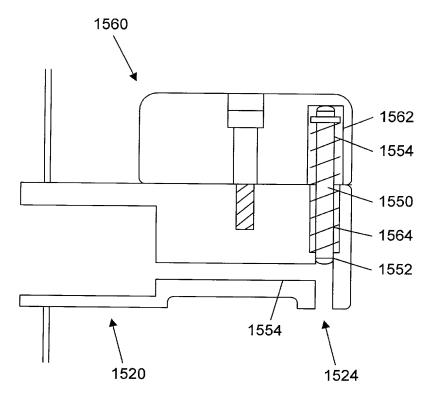


FIG. 46

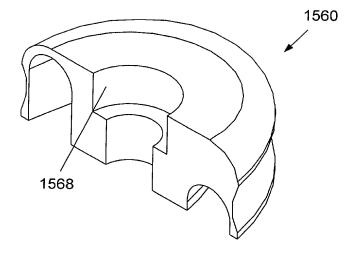


FIG. 47

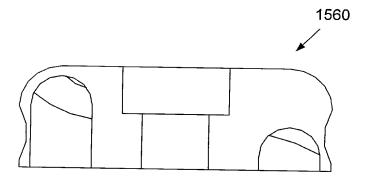


FIG. 48

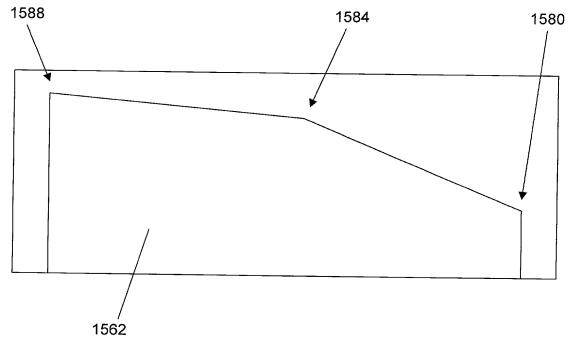


FIG. 49



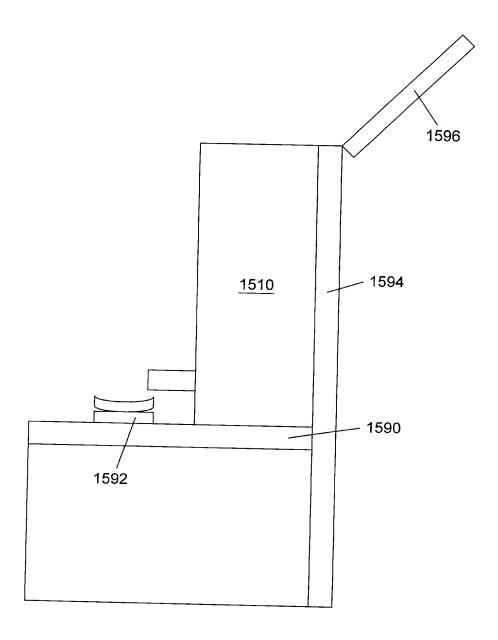
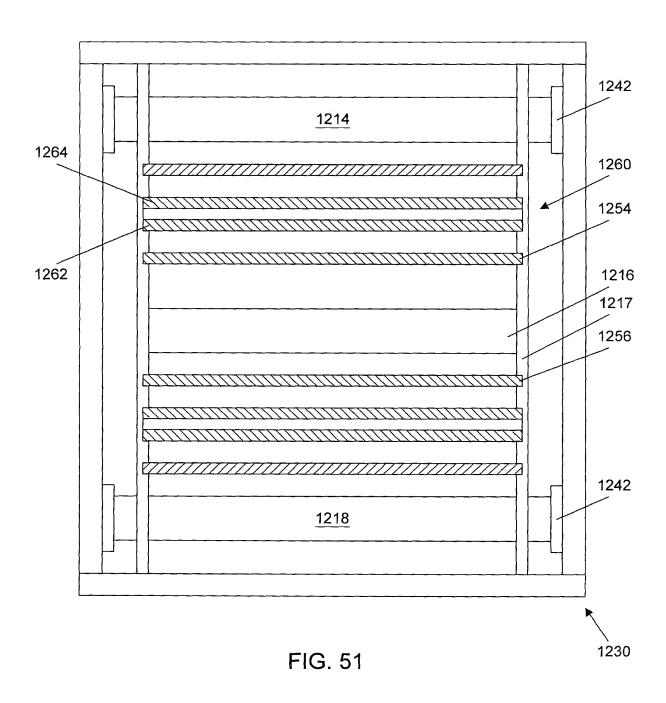


FIG. 50



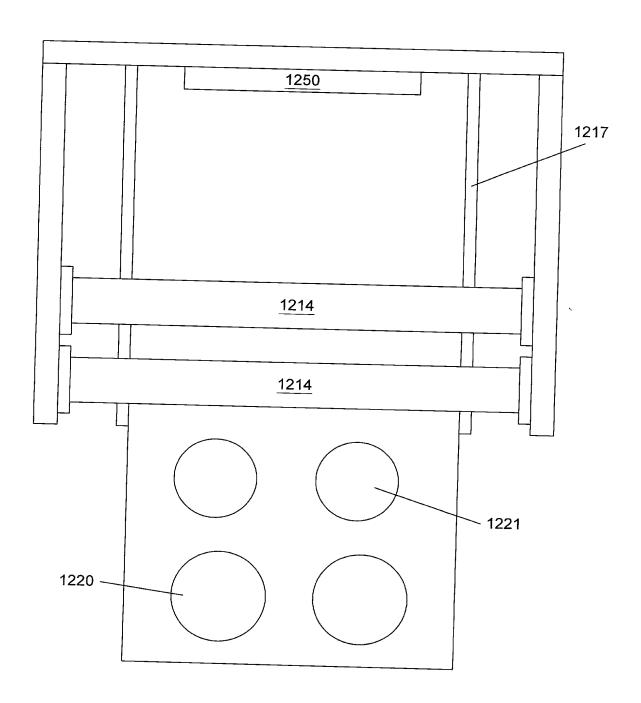


FIG. 52

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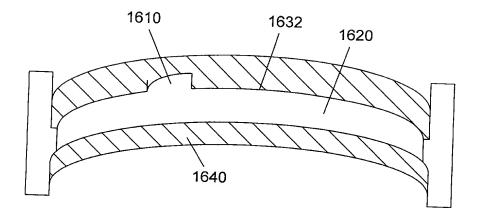


FIG. 53